

NANOFABRICATION FACILITY

ADVANCED SCIENCE RESEARCH CENTER



February 9, 2024

Hello Nanofab Users and PIs:

Here are the ASRC Nanofabrication Facility updates for February:

Upcoming Holidays February 12th and 19th

Monday, February 12th and Monday, February 19th are both federal holidays and lab staff will not be on-site. Lab access will be restricted to users with after-hours access. Please plan your work accordingly.

DI Water Update

The DI water system is back online. The system was down due to the two distribution pumps on the system breaking down. Hydro Service was able to repair the two pumps to get it back online.

Chilled Water Update

The water chiller that provides process chilled water to the Nanofab has been repaired and most of the tools that rely on it are back online. Read below for the status of individual tools.

Formstack Form for Etch Tools

Users must fill out the [following Formstack form](#) before using the etch tools. Note that one form must be filled out for each etch tool. This information is so we can understand what the needs of the users are, and also to understand how the tools are currently being used. Please fill this out ASAP to maintain access to the tools.

Oxford RIE-80 Down

The replacement AMU (Automatic Matching Network) for the Oxford 80 RIE Etcher was installed however there is still an issue integrating this with the software. The Oxford Engineer will be back on site this Tuesday to finish the repair. We will update in Slack.

Oxford ICP FLuorine

The ICP-FI was brought back online Wednesday and helium flow is back within normal parameters. The system is fully operational, however a recent software update is causing the load lock to vent after each process finishes when the sample is returned to the load lock. This won't be an issue for most etches as you would generally vent the load lock to retrieve your sample, but this will be an issue when running the clean recipe. Users must be at the ICP when the clean recipe finishes in order to stop the load lock venting and to pump the load lock down again. Failure to do this will result in the nitrogen flowing continuously, which could lead to other facility issues related to the house nitrogen. All users are required to check the ICP-FI before they disable the tool in badger in order to confirm that no recipes are running and that the load lock is pumping and under vacuum.

If you encounter any other issues with the software, please let staff know.

Oxford ICP Chlorine Etcher

The ICP-CI was brought back online Tuesday. Some etch recipes were run to test the functionality of the system. We observed that the RF matching network was a little slow to minimize the reflected power of the RF generator for some recipes, though this was very recipe dependent. If a recipe you are running has this issue, please let staff know. We should be able to make some alterations to correct this in the recipe. Please let staff know if you observe any other issues.

Oxford PECVD

The PECVD was brought back online Monday after confirming the chilled water was stable. A few deposition recipes and an OPT clean were run to test the functionality of the PECVD, and no problems were observed. Still, the software was updated like the ICPs, so if you notice any software

issues while using the PECVD, please report them immediately so we can have them patched by Oxford.

ALD Down

After getting the process chilled water back online, we had difficulty pumping the ALD chamber and found that the exhaust valve was not functioning. Though we were able to get the chamber pumping via the turbo pump, recipes cannot be run without the exhaust valve for pumping during deposition. A replacement valve has been ordered from Veeco. It is scheduled to ship next week, so we expect it to arrive either late next week or early the following week. We will post updates on Slack as we get more specifics from Veeco.

AJA Sputter Recipe Development

We will be rewriting recipes for the sputter tool. All existing recipes will be deleted February 21st. If there is a recipe that you wish to keep or would like to view the parameters, please reach out to Salam at selhalabi@gc.cuny.edu before Feb 21st.

If you already have access to the sputter tool and would like to learn how to create a recipe, also reach out to Salam. All future training will include this portion as an option for you to use the sputter tool.

Acknowledgements

Please remember to acknowledge the ASRC nanofabrication facility in your publication and let us know about exciting and new publications that utilize devices made in the facility.

This concludes the ASRC Nanofab updates for February 9th. Stay healthy and enjoy the weekend!

Nanofab Staff